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CONTINUOUS BASE-LINE STUDY

Project 1108-13

Report 200

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

April 1, 1966

Your mill at Valdosta is identified by
the following code letter in this report:

0

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

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A Progress Report

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April 1, 1966

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

INTRODUCTION

As requested by the Technical Division of the Fourdrinier Kraft Board Institute, Inc., the reports pertinent to the continuous base-line study on 42-lb. fourdrinier kraft linerboard have been prepared by The Institute of Paper Chemistry on a bimonthly basis instead of the previous monthly basis since August 1, 1961. The current report presents results obtained during the months of February and March, 1966.

PRESENTATION AND DISCUSSION OF TEST RESULTS

Each sample lot received for evaluation during February and March was evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The average strength results for each mill may be seen in Table I and are graphically presented in Fig. 1 to 5. In addition to a comparison of the current mill averages for the various tests, Table I also shows the current F.K.I. averages, the cumulative F.K.I. averages, and F.K.I. indexes. For each test, the current mill average represents the average obtained on all sample lots evaluated from a given mill during the current period, the current F.K.I. average represents the average of the current mill averages, and the cumulative F.K.I. average represents the average of the current F.K.I. averages for the previous twelve months excluding the current period. The F.K.I. index expressed in percent is the ratio of the current F.K.I. average to the cumulative F.K.I. average.

In Table II, a tabulation of the number of sample lots submitted by each mill during the current period is shown.

Supplementary to the summary of basis weight data given in Table I, a tabulation is given in Table III of the amount by which the current basis weight average for each mill varies from the 42-lb. specification set forth in Rule 41.

Shown below from Table I are the maximum and minimum current mill averages and also the current and cumulative F.K.I. averages for each test.

TABLE I

SUMMARY OF COMPOSITE MILL AVERAGES---FEBRUARY AND MARCH, 1966

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i.g.	In Machine g./sheet Cross Machine	Elmendorf Tear, g./sheet Cross Machine
A ^a	42.3	12.9	103	279	335
B ^a	42.4	12.7	116	297	356
C	42.7	12.4	113	289	354
D	42.6	12.2	109	347	395
E	42.4	12.9	111	377	409
F	42.5	12.1	114	291	366
G	No samples submitted.				
H	43.4	12.8	116	344	385
I	43.3	13.5	104	379	398
J	42.7	12.5	112	321	385
K	42.6	13.5	112	315	368
L	No samples submitted.				
M	42.2	12.4	109	357	400
N					
O					
P ^a	42.1	12.9	106	277	339
Q	42.3	12.3	119	287	347
S	42.4	12.4	108	299	366
T	42.5	12.3	119	322	360
U	42.3	12.6	105	258	323
V	42.8	12.8	108	336	379
W	No samples submitted.				
X ^a					
Z					
Current FKI average:	42.6	12.7	111	316	369
Cumulative FKI average:	42.5	12.7	111	330	376
FKI index, %	100.2	100.0	100.0	95.8	98.1

^aCurrent mill averages have been omitted in compliance with Technical Committee's request that current mill averages based on evaluations of fewer than three sample lots of linerboard should be excluded from the summary table and from the calculation of the current FKI averages.

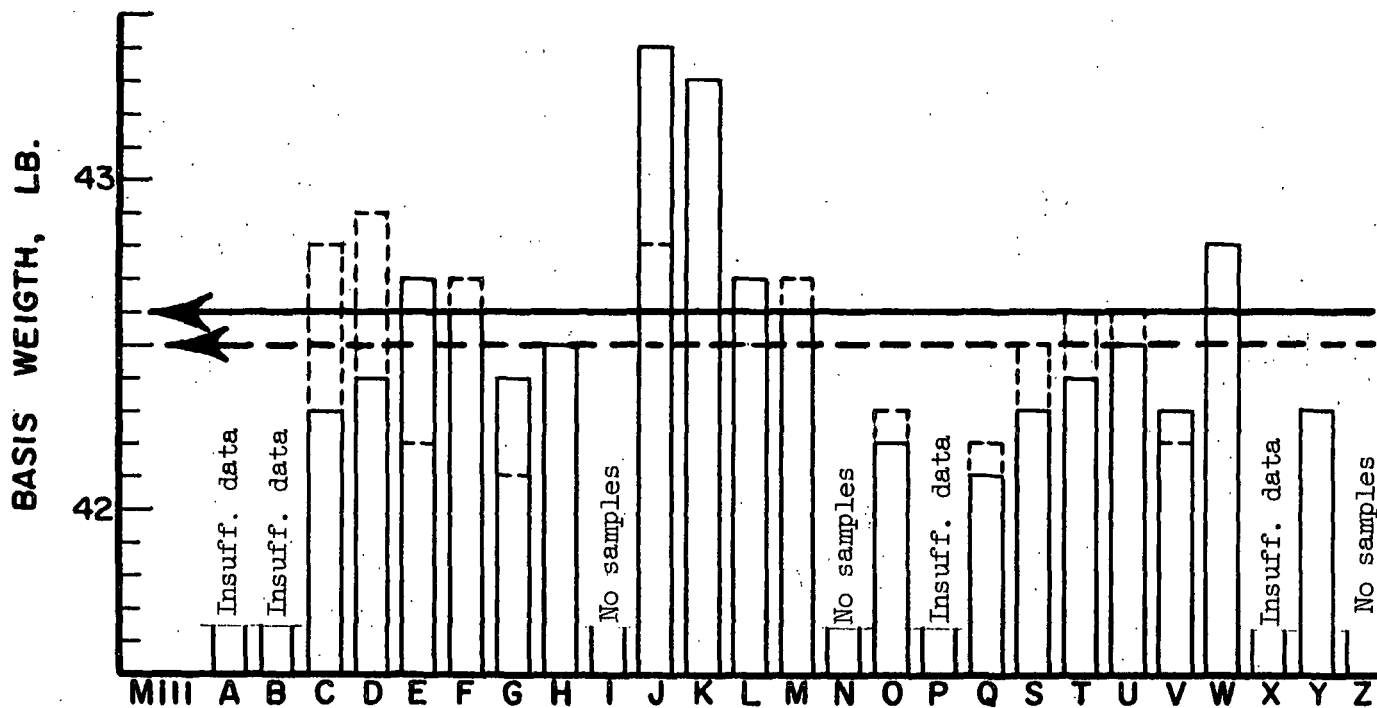
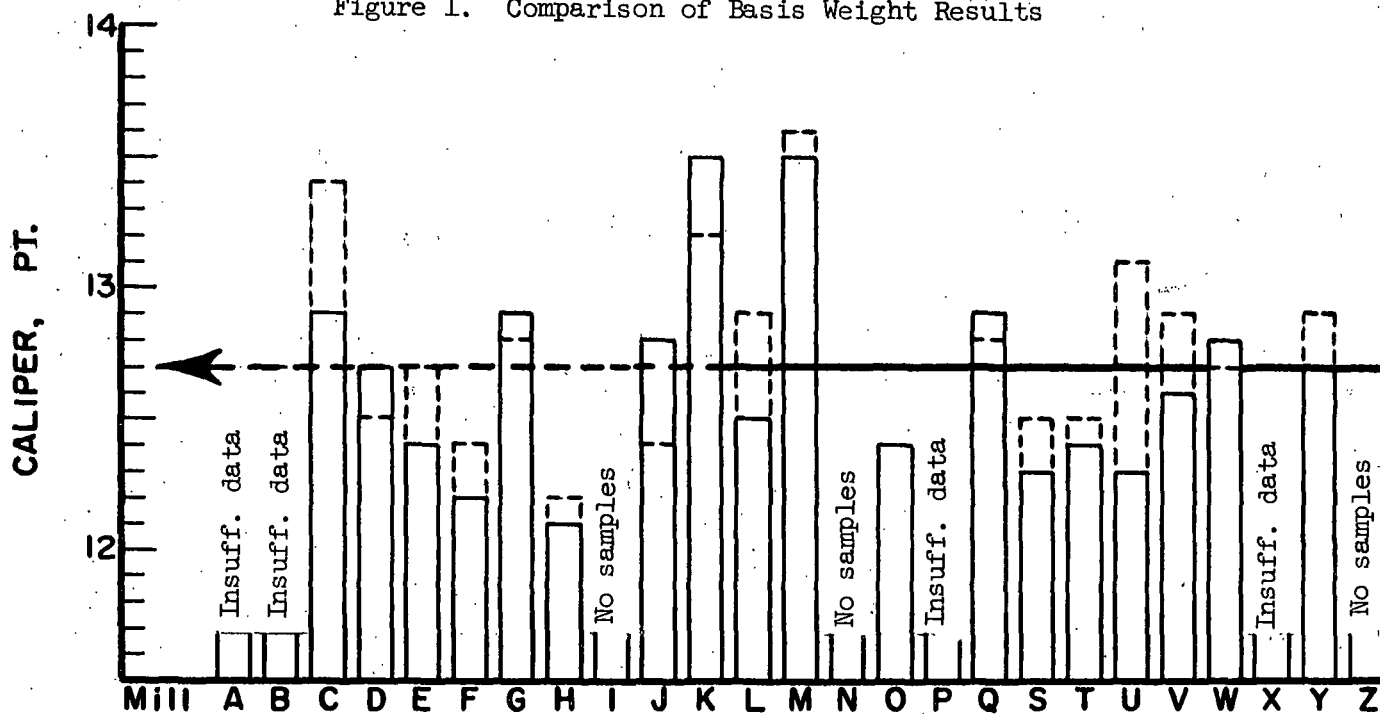


Figure 1. Comparison of Basis Weight Results



— Current machine average
 - - - Cumulative machine average

Figure 2. Comparison of Caliper Results

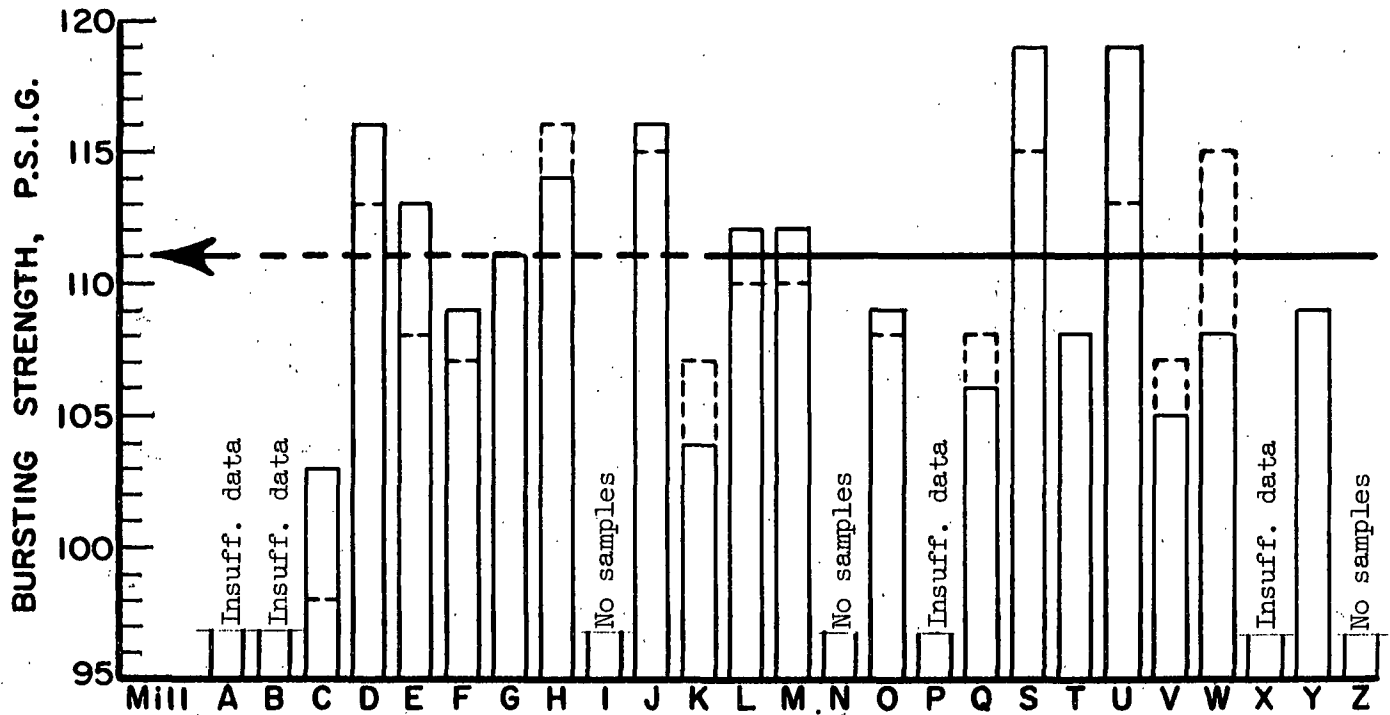


Figure 3. Comparison of Bursting Strength Results

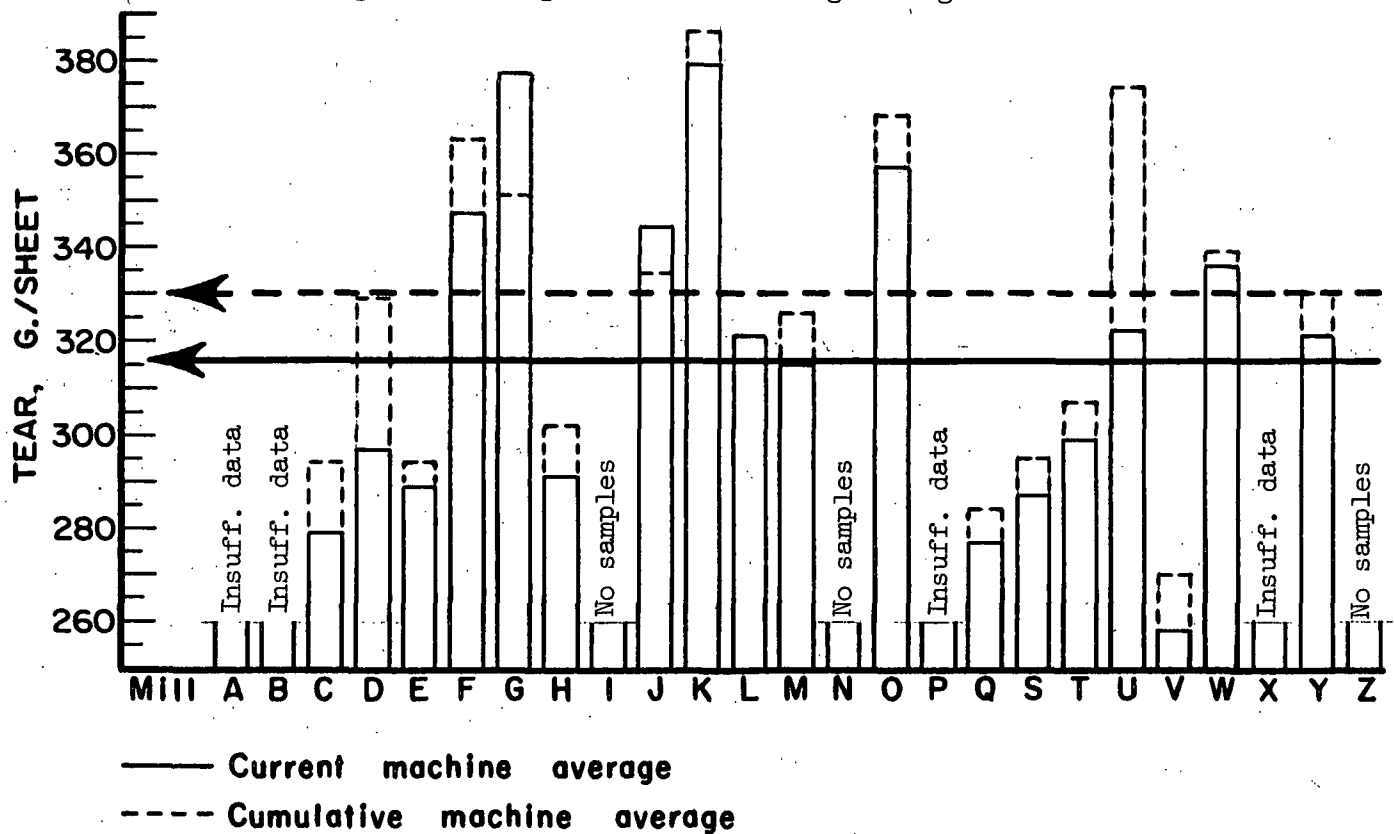


Figure 4. Comparison of Machine-Direction Tear Results

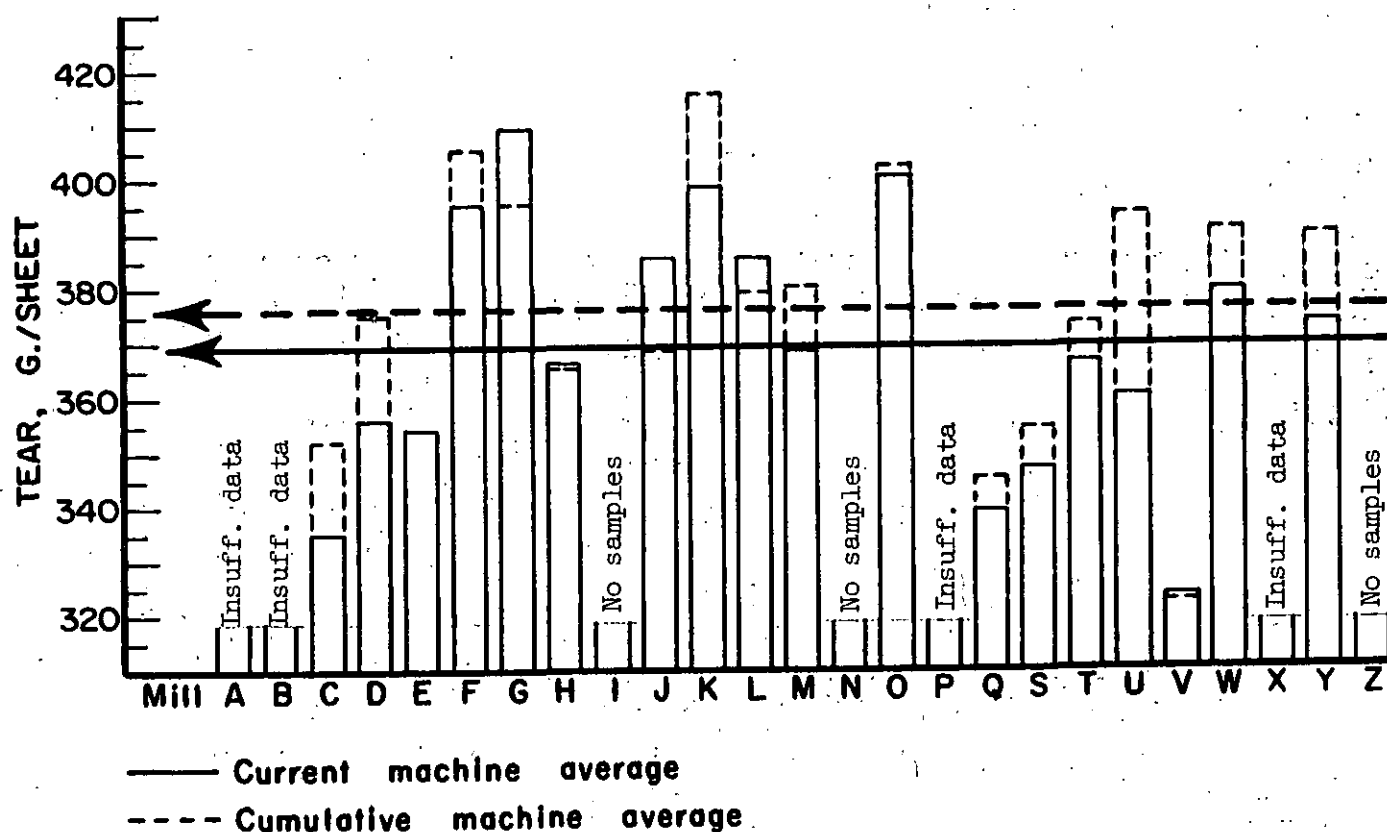


Figure 5. Comparison of Cross-Machine Direction Tear Results

TABLE II

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL
DURING FEBRUARY AND MARCH, 1966

Mill Code	Number of Sample Lots
A	1
B	2
C	9
D	11
E	11
F	8
G	6
H	7
I	0
J	8
K	3
L	7
M	8
N	0
O	6
P	2
Q	8
S	8
T	9
U	4
V	6
W	8
X	2
Y	8
Z	<u>0</u>
Total	142

TABLE III

PERCENTAGE DEVIATION OF CURRENT MILL AVERAGES FROM
42-LB. BASIS WEIGHT SPECIFICATION FOR
FEBRUARY AND MARCH, 1966

Mill Code	Percentage Deviation
A	+1.4
B	-0.2
C	+0.7
D	+1.0
E	+1.7
F	+1.4
G	+1.0
H	+1.2
I	--
J	+3.3
K	+3.1
L	+1.7
M	+1.4
N	--
O	+0.5
P	+0.7
Q	+0.2
S	+0.7
T	+1.0
U	+1.2
V	+0.7
W	+1.9
X	+6.9
Y	+0.7
Z	--

Test	Current Mill Averages		F.K.I. Averages	
	Max.	Min.	Current	Cumulative
Basis weight, lb.	44.9	41.9	42.6	42.5
Caliper, points	13.5	11.6	12.7	12.7
Bursting strength, p.s.i.g.	119	103	111	111
Machine direction Elmendorf tear, g./sheet	379	258	316	330
Cross-machine direction Elmendorf tear, g./sheet	410	323	369	376

The test results obtained at the Institute and at the mill during the current period are given alphabetically in Tables IV to XXVIII for each mill. Included in each of these tables are the maximum, minimum, and average test data obtained at the Institute on each sample lot of linerboard. The data obtained at the Institute include also for each test the calculation of (1) a current mill average that represents the mean of the averages obtained on the individual sample lots of linerboard evaluated during the current period, (2) a cumulative mill average that represents the mean of the current mill averages for the previous twelve months excluding the current period, (3) a mill factor expressed in percent that represents the ratio of the current mill average to the cumulative mill average, and (4) a mill index expressed in percent that represents the ratio of the current mill average to the cumulative F.K.I. average. The term "mean" in the preceding discussion is synonymous with the simple arithmetic average. As mentioned above, the results presented in Table IV to XXVIII also include data obtained at the mills. The mill data include for each test (1) the average result obtained on each sample lot of linerboard, and (2) a current mill average (calculated at the Institute) that represents the mean of the averages obtained on the individual sample lots

(Text is continued on page 31)

TABLE IV

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL A
February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliber, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet										
		Institute	Max. Min.	Av.	Institute	Max. Min.	Av.	Institute	Max. Min.	Av.	Institute	Max. Min.	Av.	Institute	Max. Min.	Av.								
2-10-66	---	43.6	42.0	42.6	41.8	-0.8	13.2	12.1	12.9	12.7	-0.2	127	87	111	109	-2	384	296	327 ^a	---	400	352	375 ^a	---
Current mill average:		42.6		41.8	-0.8		12.9	12.7	-0.2			111	109	-2			327	---			375	---		
Cumulative mill average:		42.1					12.8					111					354				367			
Mill factor, %		101.2					100.8					100.0					92.4				102.2			
Mill index, %		100.2					101.6					100.0					99.1				99.7			

TABLE V

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL B

2-3-66	---	43.2	38.6	41.9	42.6	+0.7	12.0	11.0	11.6	11.3	-0.3	135	87	108	112	+4	416	304	350 ^a	356	+6	392	304	361 ^a	388	+27
2-6-66	---	43.6	39.6	41.9	42.3	+0.4	12.1	11.0	11.6	11.6	0.0	129	66	104	111	+7	416	296	349	367	+18	400	336	369 ^a	387	+18
Current mill average:		41.9	42.4	+0.5	11.6	11.4	-0.2	106	112	+6	350	362	+12	365	388	+23										
Cumulative mill average:		42.6			12.2			107			374			384												
Mill factor, %		98.4			95.1			99.1			93.6			95.1												
Mill index, %		98.6			91.3			95.5			106.1			97.1												

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE VI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL C
February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE VII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL D
February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.f.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine													
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill											
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.											
12- 9-65	W.F.	3	43.4	42.6	42.9	43.3	+0.4	13.0	12.0	12.5	12.3	-0.2	137	99	117	114	-3	360	272	297	291	- 6	384	328	351 ^a	375	+24
12-17-65	W.F.	3	43.4	42.2	42.7	43.6	+0.9	13.0	12.2	12.5	12.3	-0.2	131	95	114	114	0	352	272	311	299	-12	384	312	350 ^a	373	+23
12-18-65	W.F.	3	43.0	42.2	42.6	43.9	+1.3	13.0	12.0	12.5	12.3	-0.2	132	94	114	112	-2	320	248	293	316	+23	400	304	343 ^a	397	+54
1-16-66	W.F.	3	42.4	42.0	42.1	43.1	+1.0	12.9	12.1	12.4	12.3	-0.1	130	98	114	116	+2	320	264	300	320	+20	368	336	347 ^a	375	+28
1- 2-66	W.F.	1	43.0	42.0	42.2	42.6	+0.4	13.6	12.8	13.1	12.5	-0.6	133	101	118	115	-3	336	256	300	306	+ 6	392	336	364 ^a	377	+13
1- 3-66	W.F.	1	42.8	41.8	42.2	42.8	+0.6	13.3	12.4	13.0	12.5	-0.5	135	100	118	115	-3	344	256	287 ^a	290	+ 3	384	328	352 ^a	395	+43
1-30-66	W.F.	3	43.6	42.2	42.6	43.1	+0.5	12.7	11.3	12.1	11.9	-0.2	134	95	117	119	+2	344	264	300	296	- 4	384	328	355 ^a	392	+37
2- 1-66	W.F.	3	43.6	42.0	42.6	43.2	+0.6	12.8	11.7	12.1	11.9	-0.2	135	89	117	119	+2	312	224	282	302	+20	432	328	368 ^a	381	+13
2- 8-66	W.F.	1	42.4	40.6	42.0	42.8	+0.8	13.6	12.5	13.0	12.6	-0.4	130	95	116	113	-3	344	240	301 ^a	300	- 1	384	328	359 ^a	401	+42
2- 9-66	W.F.	1	42.6	42.0	42.2	42.9	+0.7	13.9	12.8	13.1	12.7	-0.4	129	99	113	114	+1	336	264	299 ^a	293	- 6	400	352	371 ^a	398	+27
2-12-66	W.F.	1	42.4	42.0	42.2	42.8	+0.6	13.7	12.9	13.2	12.7	-0.5	140	102	116	112	-4	376	264	299	299	0	392	336	359 ^a	375	+16
Current mill average:			42.4	42.4	42.9	43.1	+0.7	12.7	12.4	12.4	12.4	-0.3	116	115	115	115	-1	297	272	297	301	+ 4	356	328	385	375	+29
Cumulative mill average:			42.9	42.9	42.9	43.1	+0.7	12.5	12.5	12.5	12.5	-0.3	113	113	113	113	0	329	272	297	301	+ 4	375	328	385	375	+29
Mill factor, %			98.8	98.8	98.8	99.8	+1.0	101.6	101.6	101.6	101.6	+0.4	102.7	102.7	102.7	102.7	0	90.3	90.3	90.3	90.3	0	94.9	94.9	94.9	94.9	+0.0
Mill index, %			99.8	99.8	99.8	100.0	+0.2	100.0	100.0	100.0	100.0	+0.2	104.5	104.5	104.5	104.5	0	90.0	90.0	90.0	90.0	0	94.7	94.7	94.7	94.7	+0.0

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE VIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL E
February and March, 1966

Date Made	Pch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
		Institute Max.	Institute Min.	Institute Av.	Institute Max.	Institute Min.	Institute Av.	Institute Max.	Institute Min.	Institute Av.	Institute Max.	Institute Min.	Institute Av.	Institute Max.	Institute Min.	Institute Av.										
Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.	Diff.											
12-6-65 ^b	----	43.6	41.0	42.2	42.7	+0.5	12.9	11.9	12.3	12.0	-0.3	140	72	110	107	-3	352	264	295 ^a	274	-21	424	304	351 ^a	365	+14
12-5-65	----	42.6	41.0	41.6	42.4	+0.8	12.7	11.5	12.0	11.8	-0.2	128	92	109	107	-2	336	224	273	277	+4	400	304	363 ^a	364	+1
12-29-65	----	43.6	40.8	42.3	42.9	+0.6	12.9	12.0	12.4	12.1	-0.3	136	69	112	108	-4	336	272	305	287	-18	392	336	365 ^a	360	-5
1-24-66	----	42.2	40.2	41.8	44.0	+2.2	13.0	11.5	12.2	12.5	+0.3	139	89	108	107	-1	320	224	273 ^a	290	+17	400	288	343 ^a	374	+31
1-23-66	----	44.0	42.2	43.2	42.3	-0.9	13.7	12.1	12.7	11.9	-0.8	139	88	110	111	+1	336	240	285	276	-9	392	336	362 ^a	358	-4
1-11-66	----	44.4	42.0	43.4	44.2	+0.8	12.9	12.1	12.6	12.4	-0.2	132	73	104	105	+1	368	256	308	292	-16	376	320	343 ^a	370	-27
2-8-66	----	44.2	42.0	42.8	43.3	+0.5	13.2	11.8	12.4	12.2	-0.2	141	91	118	114	-4	320	232	278 ^a	281	+3	400	312	350 ^a	369	+19
2-11-66	----	45.8	43.6	44.3	44.0	-0.3	14.0	12.2	12.8	12.3	-0.5	144	95	120	113	-7	344	264	303 ^a	278	-25	376	320	353 ^a	371	+18
2-13-66	----	43.6	42.2	42.8	43.6	+0.8	13.4	12.0	12.6	12.5	-0.1	136	94	120	113	-7	312	256	284 ^a	283	-1	408	344	364 ^a	372	+8
2-20-66	----	43.4	40.8	42.0	43.0	+1.0	13.2	11.7	12.4	12.1	-0.3	139	89	117	110	-7	352	256	290 ^a	294	+4	384	304	345 ^a	365	-20
3-3-66	----	43.8	42.0	42.9	42.9	0.0	13.0	11.1	12.1	11.7	-0.4	139	83	114	115	+1	312	256	282 ^a	278	-4	416	328	358 ^a	370	-12
Current mill average:		42.7	43.2	+0.5	12.4	12.1	-0.3	113	110	-3	289	263	-6	354	367	+13										
Cumulative mill average:		42.2			12.7			108			294			354												
Mill factor, %		101.2			97.6			104.6			98.3			100.0												
Mill index, %		100.5			97.6			101.8			87.6			94.1												

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
^bThis date appeared on the sample received by the Institute. The mill data sheet gives the date of manufacture as December 8, 1965.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE IX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL F

February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Cross Machine												
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill										
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.										
1-13-66	----	1	41.6	40.4	42.3	42.1	-0.2	12.8	11.7	12.1	12.1	0.0	133	74	104	104	0	400	304	351 ^a	----	432	352	391 ^a	----	
2-1-66	----	1	43.6	41.6	42.4	42.3	-0.1	12.5	11.3	11.9	12.0	+0.1	126	84	106	112	+6	384	296	349	----	416	352	376 ^a	----	
2-1-66	----	2	43.4	42.0	42.3	42.6	+0.3	12.4	11.7	12.0	12.0	0.0	126	83	104	110	+6	432	320	352	----	448	360	393 ^a	----	
2-15-66	----	1	44.0	41.6	42.8	42.8	0.0	12.2	11.4	11.9	12.2	+0.3	128	86	110	113	+3	368	304	338 ^a	----	440	376	404 ^a	----	
2-17-66	----	2	44.0	42.0	42.8	42.7	-0.1	12.7	11.7	12.0	12.2	+0.2	129	95	114	115	+1	384	272	343 ^a	----	456	376	417 ^a	----	
3-1-66	----	1	43.8	40.2	42.0	41.8	-0.2	13.2	12.3	12.8	12.8	0.0	131	74	101	102	+1	408	280	343 ^a	----	432	352	381 ^a	----	
3-7-66	----	2	44.2	42.2	43.0	43.3	+0.3	13.0	11.8	12.5	12.7	+0.2	134	100	116	111	-5	392	296	351 ^a	----	424	360	389 ^a	----	
3-11-66	----	2	44.2	42.0	42.8	42.5	-0.3	13.1	12.1	12.7	12.9	+0.2	134	94	116	113	-3	392	288	349 ^a	----	448	384	407 ^a	----	
Current mill average:			42.6	42.5	-0.1			12.2	12.4	+0.2			109	110	+1			347					395			
Cumulative mill average:			42.7					12.4					107					363					405			
Mill factor, %			99.8					98.4					101.9					95.6					97.5			
Mill index, %			100.2					96.1					98.2					105.2					105.1			

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE I
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL G
February and March, 1966

Date Made	Mch. No.	Finish	Basis Weight, lb.			Caliber, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
			Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.					
1-28-66	1	----	43.6	41.8	42.6	41.7	-0.9	13.5	12.6	13.0	12.5	-0.5	137	84	108	113	+ 5	424	376	368 ^a	337	-31	464	376	415 ^a	398	-17
1-28-66	1	----	43.8	41.6	42.4	41.8	-0.6	13.9	12.3	13.2	12.5	-0.7	135	81	111	110	- 1	448	320	384	336	-48	480	352	399 ^a	385	-14
1-28-66	1	----	43.8	41.8	42.7	41.9	-0.8	13.3	12.1	12.8	12.7	-0.1	136	84	107	113	+ 6	416	352	381	335	-46	456	352	407 ^a	405	- 2
2-24-66	1	----	41.8	40.0	40.9	40.7	-0.2	13.7	11.7	12.5	12.4	-0.1	136	75	107	115	+ 8	392	288	349 ^a	325	-24	480	320	404 ^a	365	-39
2-24-66	1	----	44.0	40.4	42.9	42.2	-0.7	14.2	12.2	13.3	12.9	-0.4	165	90	126	136	+10	464	328	397 ^a	332	-65	480	328	403 ^a	369	-14
3- 5-66	1	----	44.0	41.6	42.7	42.0	-0.7	13.9	11.8	12.8	12.2	-0.6	130	87	110	114	+ 4	456	320	385 ^a	354	-31	472	384	423 ^a	401	-22
Current mill average:			42.4	41.7	-0.7			12.9	12.5	-0.4			111	117	+ 6			377	336	-41			409	390	-19		
Cumulative mill average:			42.1					12.8					111					351					395				
Mill factor, %			100.7					100.8					100.0					107.4					103.5				
Mill index, %			99.8					101.6					100.0					114.2					108.8				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL H

February and March, 1966

Date Made	Mch. No.	Finish	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
			Institute	Max. Min.	Mill	Institute	Max. Min.	Mill	Institute	Max. Min.	Mill	Institute	Max. Min.	Mill	Institute	Max. Min.	Mill											
			Av.	Av.	Diff.	Av.	Av.	Diff.	Av.	Av.	Diff.	Av.	Av.	Diff.	Av.	Av.	Diff.											
12-28-65	W.F.	1	43.8	42.0	42.6	42.6	0.0	12.8	12.0	12.4	12.1	12.1	0	136	82	112	112	283	352	272	313 ^a	283	-30	432	366	383 ^a	364	-19
1-11-66	W.F.	1	42.6	41.6	42.1	42.3	+0.2	12.7	11.9	12.1	12.0	12.0	-4	142	94	117	113	269	304	248	275	269	-6	400	304	363 ^a	358	-5
1-19-66	W.F.	1	43.2	41.6	42.6	42.4	-0.2	12.8	12.0	12.4	12.0	12.0	-2	127	87	112	110	281	344	240	298 ^a	281	-17	448	352	389 ^a	366	-23
1-24-66	W.F.	1	43.8	42.0	42.8	42.6	-0.2	12.6	11.6	12.1	12.0	12.0	-7	131	96	116	109	275	320	248	282	275	-7	384	304	342 ^a	358	+16
2-6-66	W.F.	1	43.6	42.0	42.4	42.8	+0.4	12.9	12.0	12.3	12.1	12.1	-2	131	100	114	112	293	344	272	299	293	-6	400	352	380 ^a	376	-4
2-13-66	W.F.	1	43.6	42.0	42.7	42.4	-0.3	12.7	11.7	12.1	11.9	11.9	-5	134	97	116	111	279	312	208	273 ^a	279	+6	368	320	343 ^a	357	+14
3-3-66	W.F.	1	43.6	42.0	42.4	42.2	-0.2	12.0	11.1	11.5	11.2	11.2	0	135	87	111	111	287	320	248	297	287	-10	392	336	365 ^a	364	-1
Current mill average:			42.5	42.5	42.5	42.5	0.0	12.1	11.9	12.1	11.9	11.9	-3	114	111	114	111	291	291	281	281	281	-10	366	363	363	363	-3
Cumulative mill average:			42.5	42.5	42.5	42.5		12.2	12.2	12.2	12.2	12.2		116		116		302		302		302		365		365		
Mill factor, %			100.0	100.0	100.0	100.0		99.2	99.2	99.2	99.2	99.2		98.3		98.3		96.4		96.4		96.4		100.3		100.3		
Mill index, %			100.0	100.0	100.0	100.0		95.3	95.3	95.3	95.3	95.3		102.7		102.7		68.2		68.2		68.2		97.3		97.3		

TABLE XII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL I

No samples submitted.

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL J
February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine													
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill											
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.											
2-3-66	W.F.	-	43.0	42.0	42.2	43.0	+0.8	12.4	12.0	12.1	12.1	0.0	136	103	119	116	-3	408	304	348	321	-27	408	336	365 ^a	381	+16
2-4-66	W.F.	-	43.2	42.0	42.3	43.1	+0.8	13.5	12.9	13.1	13.0	-0.1	115	88	101	106	+5	360	264	317	327	+10	384	320	365 ^a	381	+16
2-11-66	W.F.	-	44.8	43.8	44.2	44.7	+0.5	13.1	12.0	12.7	12.1	-0.6	139	87	116	118	+2	384	304	344 ^a	344	0	472	368	415 ^a	397	-18
2-18-66	W.F.	-	42.6	42.0	42.2	43.1	+0.9	13.3	12.9	13.1	12.5	-0.6	136	93	116	111	-5	384	288	337 ^a	344	+7	432	336	391 ^a	361	-10
3-3-66	W.F.	-	46.6	45.8	46.0	45.6	-0.4	13.7	12.8	13.1	12.2	-0.9	153	110	130	120	-10	416	328	368 ^a	333	-35	472	360	415 ^a	421	+6
3-4-66	W.F.	-	44.6	42.8	43.8	43.9	+0.1	13.2	12.8	13.0	12.3	-0.7	142	102	118	111	-7	424	344	393 ^a	361	-32	456	344	405 ^a	391	-14
3-11-66	W.F.	-	44.2	42.2	43.7	43.9	+0.2	13.7	12.6	13.0	12.5	-0.5	130	94	110	108	-2	368	264	315 ^a	341	+26	424	328	370 ^a	373	+3
3-21-66	W.F.	-	43.8	42.0	42.9	43.0	+0.1	12.7	11.6	12.2	11.6	-0.6	131	97	115	113	-2	368	288	331 ^a	356	+25	384	320	351 ^a	373	+22
Current mill average:			43.4	42.8	43.8	43.4	+0.4	12.8	12.3	12.3	12.3	-0.5	116	113	113	113	-3	344	344	341	341	-3	385	387	385	387	+2
Cumulative mill average:			42.8			42.8		12.4					115					334					368				
Mill factor, %						101.4		103.2					100.9					103.0					104.6				
Mill index, %						102.1		100.8					104.5					104.2					102.4				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL K

February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill											
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.											
1-27-66	---	45.0	42.8	44.1	42.8	-1.3	14.1	13.0	13.6	13.4	-0.2	126	84	104	105	+1	416	320	371	350	-21	472	352	404 ^a	390	-14	
2-10-66	---	44.4	42.0	43.0	42.6	-0.4	13.8	12.9	13.3	12.8	-0.5	127	89	104	101	-3	480	320	397	335	-62	456	344	408 ^a	356	-52	
2-24-66	---	44.0	41.8	42.9	43.9	+1.0	14.6	12.8	13.6	13.2	-0.4	134	87	105	104	-1	408	296	370 ^b	325	-45	432	336	383 ^a	379	-4	
Current mill average:		43.3	43.1	-0.2			13.5	13.1	-0.4	104	104	0						379	337	-42			398	375	-23		
Cumulative mill average:		43.3					13.2			107								386					415				
Mill factor, %		100.0					102.3			97.2								98.2					95.9				
Mill index, %		101.9					106.3			93.7								114.8					105.9				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE IV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL
February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.										
1-13-66	D.F. 1	42.4	41.6	42.1	42.6	+0.5	13.5	12.3	12.9	12.7	-0.2	130	99	113	113	0	368	256	320 ^a	299	-21	432	352	382 ^a	399	+17
1-18-66	D.F. 1	43.6	42.0	42.6	43.6	+1.0	12.9	12.0	12.4	12.4	0.0	133	102	114	120	+6	376	240	325 ^a	296	-29	456	352	399 ^a	406	+7
1-27-66	D.F. 1	44.0	42.2	43.3	43.4	+0.1	12.8	11.8	12.2	12.2	0.0	141	96	119	118	-1	344	272	311 ^a	288	-23	400	320	369 ^a	358	-11
1-31-66	D.F. 1	42.0	40.4	41.6	42.2	+0.6	12.0	11.0	11.5	11.5	0.0	130	90	114	118	+4	344	272	299 ^a	276	-23	424	336	375 ^a	367	-8
2-5-66	D.F. 1	43.8	41.8	42.7	43.2	+0.5	13.1	12.0	12.5	12.3	-0.2	129	85	108	108	0	368	272	320 ^a	292	-28	432	320	369 ^a	369	0
2-13-66	D.F. 1	44.0	42.4	43.1	43.6	+0.5	13.7	12.1	12.9	12.6	-0.3	137	86	113	113	0	416	288	342 ^a	311	-31	472	376	413 ^a	393	-20
2-14-66	D.F. 1	44.6	42.2	43.5	43.6	+0.1	14.0	12.3	13.2	13.0	-0.2	123	93	106	106	0	408	272	331 ^a	287	-44	456	352	387 ^a	360	-27
Current mill average:		42.7	43.2	+0.5	12.5	12.4	-0.1	12.5	12.4	-0.1	112	114	+2	321	293	-28	385	379	-6							
Cumulative mill average:		42.5			12.9			12.9			110			321			379									
Mill factor, %		100.5			96.9			96.9			101.8			100.0			101.6									
Mill index, %		100.5			98.4			98.4			100.9			97.3			102.4									

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL M
February and March, 1966

Date Made	Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine													
		Max.	Min.	Av.	Institute	Min.	Av.	Diff.	Max.	Min.	Av.	Institute	Min.	Av.	Diff.	Max.	Min.	Av.	Institute	Min.	Av.	Diff.					
1-17-66	WFLS	1	43.0	40.2	42.1	42.4	+0.3	13.9	13.0	13.4	13.0	-0.4	123	90	110	111	+1	344	248	301 ^a	301	0	400	336	377 ^a	349	-28
1-24-66	WFLS	1	43.6	40.2	42.2	42.4	+0.2	13.8	12.8	13.4	12.9	-0.5	132	90	115	110	-5	376	256	314	292	-22	392	344	363 ^a	345	-18
1-31-66	WFLS	1	43.8	40.8	42.3	42.8	+0.5	14.0	13.0	13.4	13.0	-0.4	129	89	108	111	+3	360	272	321 ^a	328	+7	408	336	375 ^a	380	+5
2-7-66	WFLS	1	43.8	40.0	42.4	42.2	-0.2	13.9	12.8	13.3	12.9	-0.4	135	95	113	110	-3	360	240	294	318	+24	392	336	362 ^a	374	+12
2-14-66	WFLS	1	44.0	41.0	42.6	42.3	-0.3	14.6	12.9	13.6	12.9	-0.7	137	86	113	114	+1	376	224	297 ^a	309	+12	456	328	380 ^a	365	-15
2-22-66	WFLS	1	44.8	42.2	43.4	42.6	-0.8	14.8	13.2	13.8	13.0	-0.8	126	91	112	112	0	368	272	321 ^a	270	-51	408	336	369 ^a	351	-18
2-28-66	WFLS	1	44.0	42.0	43.1	42.9	-0.2	14.4	12.8	13.7	13.1	-0.6	130	92	113	111	-2	376	280	325 ^a	327	+2	432	328	367 ^a	376	+9
3-6-66	WFLS	1	43.6	42.0	42.6	42.7	+0.1	14.1	13.1	13.5	12.8	-0.7	137	91	113	112	-1	416	304	345	327	-18	424	320	353 ^a	383	+30
Current mill average:			42.6	42.5	-0.1			13.5	12.9	-0.6			112	111	-1			315	309	-6			368	365	-3		
Cumulative mill average:			42.7					13.6					110					326					380				
Mill factor, %			99.8					99.3					101.8					96.6					96.8				
Mill Index, %			100.2					106.3					100.9					95.5					97.9				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL N

February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet		
		Max.	Institute	Mill	Max.	Institute	Mill	Max.	Institute	Mill	Max.	Institute	Mill
		Min.	Av.	Diff.	Min.	Av.	Diff.	Min.	Av.	Diff.	Min.	Av.	Diff.

No samples submitted.

TABLE XVIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL O

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^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIX
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL F
February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet														
		Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.												
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.												
1-3-66	WFLS 1	43.8	41.0	42.4	42.8	42.8	+0.4	12.9	12.0	12.2	12.3	+0.1	134	88	112	112	0	384	312	333	333	0	416	352	381 ^a	369	-12	
1-28-66	WFLS 1	43.0	41.8	42.2	42.2	42.2	0.0	12.2	11.4	11.9	11.8	-0.1	126	94	113	117	+4	368	264	308	324	+16	416	344	386 ^a	375	-11	
Current mill average:		42.3	42.5	+0.2				12.1	12.0	-0.1				113	114	+1			321	328	+7			383	372	-11		
Cumulative mill average:		42.8						12.2						113					362					401				
Mill factor, %		98.8						99.2						100.0					88.7					95.5				
Mill index, %		99.5						95.3						101.8					97.3					101.9				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XI

SUMMARY OF INSTITUTES AND MILL DATA FOR MILL Q

February and March, 1966

Date Made	Mch. No.	Basis Weight, lb.			Caliber, points			Bursting Strength, P.S.I.			Elmendorf Tear, g./sheet															
		Institute	Max.	Min.	Institute	Max.	Min.	Institute	Max.	Min.	Institute	Max.	Min.													
1-7-66	W.F.	42.4	40.4	41.8	42.8	+1.0	12.5	11.8	12.2	13.0	+0.8	118	73	101	108	+7	304	232	274	236	-38	384	320	353 ^a	333	-20
1-15-66	W.F.	42.4	42.0	42.2	42.2	0.0	12.9	12.3	12.7	13.0	+0.3	121	88	108	109	+1	304	208	260 ^a	247	-13	352	288	325 ^a	329	+4
1-21-66	W.F.	42.4	42.0	42.1	42.6	+0.5	13.2	12.8	13.0	13.1	+0.1	144	78	114	120	+6	336	248	288	284	-4	384	320	343 ^a	357	+14
1-30-66	W.F.	42.4	41.6	41.9	42.0	+0.1	13.2	12.2	12.8	13.0	+0.2	124	84	100	108	+8	312	240	275 ^a	223	-52	352	320	332 ^a	287	-45
2-4-66	W.F.	42.2	42.0	42.0	42.1	+0.1	13.1	12.3	12.8	12.9	+0.1	121	91	109	110	+1	320	216	274 ^a	227	-47	360	304	341 ^a	328	-13
2-12-66	W.F.	43.6	42.2	42.6	42.4	-0.2	13.4	12.8	13.1	13.1	0.0	144	98	120	117	-3	352	240	289 ^a	276	-13	392	328	350 ^a	350	0
2-17-66	W.F.	42.4	41.6	42.0	42.2	+0.2	13.8	12.4	13.1	13.0	-0.1	127	80	100	110	+10	304	256	282	231	-51	368	296	333 ^a	295	-38
2-25-66	W.F.	42.6	41.4	42.0	42.0	0.0	13.9	12.0	13.2	13.3	+0.1	117	73	95	102	+7	320	216	273 ^a	246	-27	368	312	337 ^a	336	-1
Current mill average:		42.1	42.3	+0.2			12.9	13.0	+0.1			106	110	+4			277	246	-31			339	327	-12		
Cumulative mill average:		42.2					12.8					108					284					345				
Mill factor, %		99.8					100.8					98.1					97.5					98.3				
Mill index, %		99.1					101.6					95.5					83.9					90.2				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL S

February and March, 1966

Date Made	Web. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet												
		Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.					
1-2-66	WFLS 2	43.4	42.2	42.7	43.5	+0.8	12.9	12.0	12.3	12	-0.3	140	108	123	118	-5	336	240	303	323	+20	384	336	355 ^a	382	+27
1-14-66	WFLS 2	42.2	41.8	42.0	43.0	+1.0	12.4	12.0	12.2	12	-0.2	133	91	118	114	-4	352	256	301	300	-1	352	320	335 ^a	377	+42
1-25-66	WFLS 2	42.4	42.0	42.1	42.8	+0.7	12.8	12.0	12.3	12.2	-0.1	139	95	121	119	-2	320	240	284	262	-22	384	320	350 ^a	355	+5
1-29-66	WFLS 2	42.6	41.8	42.1	43.0	+0.9	12.5	11.8	12.2	12	-0.2	142	108	125	118	-7	320	240	283	279	-4	368	320	344 ^a	366	+22
2-2-66	WFLS 2	42.4	41.8	42.0	42.7	+0.7	12.9	12.0	12.4	12	-0.4	141	88	112	111	-1	336	248	283 ^a	296	+13	392	296	342 ^a	368	+26
2-9-66	WFLS 2	44.0	42.4	43.4	43.2	-0.2	12.8	12.1	12.5	12	-0.5	142	98	124	113	-11	320	232	289 ^a	296	+7	384	312	358 ^a	368	+10
2-14-66	WFLS 2	42.4	41.8	41.9	43.4	+1.5	13.1	12.0	12.5	12	-0.5	129	92	113	112	-1	336	224	259 ^a	296	+37	376	296	335 ^a	376	+41
2-27-66	WFLS 2	44.0	41.8	42.5	43.2	+0.7	12.9	12.0	12.3	12	-0.3	141	94	119	118	-1	352	240	294 ^a	288	-6	384	328	354 ^a	384	+30
Current mill average:		42.3	43.1	+0.8	12.3	12.0	-0.3	119	115	-4	287	292	+5	347	372	-25						347	372	-25		
Cumulative mill average:		42.5			12.5			115			295			354								354				
Mill factor, %		99.5			98.4			103.5			97.3			98.0								98.0				
Mill index, %		99.5			96.9			107.2			87.0			92.3								92.3				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL T
February and March, 1966

Date Made	Kch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
		Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.										
1-18-66	WFLS	1	43.0	41.8	42.3	42.4	+0.1	13.0	12.1	12.5	12.5	0.0	132	80	108	106	-2	336	240	291	333	+42	384	320	359 ^a	406	+47
1-25-66	WFLS	1	43.6	42.0	42.5	42.5	0.0	12.9	12.1	12.3	12.3	0.0	128	82	109	108	-1	352	280	307	309	+2	472	336	389 ^a	391	+2
2- 1-66	WFLS	1	43.8	42.0	42.6	42.5	-0.1	12.9	12.0	12.5	12.2	-0.3	145	80	107	107	0	360	256	311	319	+8	432	344	377 ^a	387	+10
2- 8-66	WFLS	1	43.6	42.2	42.7	42.4	-0.3	12.9	12.0	12.3	12.2	-0.1	127	86	107	107	0	368	280	312	333	+12	384	320	349 ^a	381	+32
2-15-66	WFLS	1	43.6	42.0	42.6	42.8	+0.2	13.0	11.7	12.4	12.4	0.0	130	89	110	106	-4	352	256	305	337	+32	400	320	366 ^a	417	+51
2-22-66	WFLS	1	44.0	42.0	42.9	42.7	-0.2	13.1	12.2	12.5	12.2	-0.3	140	89	111	108	-3	352	240	299 ^a	315	+16	416	320	372 ^a	396	+24
3- 1-66	WFLS	1	43.6	41.6	42.4	42.8	+0.4	13.1	12.1	12.4	12.4	0.0	135	85	110	109	-1	352	256	294 ^a	325	+31	416	328	375 ^a	393	+18
3- 8-66	WFLS	1	43.4	41.8	42.4	42.5	+0.1	13.1	11.8	12.5	12.2	-0.3	135	83	107	106	-1	352	272	307 ^a	342	+35	432	304	359 ^a	402	+43
3-15-66	WFLS	1	43.6	40.0	41.5	41.9	+0.4	12.8	11.2	11.9	12.1	+0.2	124	90	104	106	+2	304	240	265	338	+73	400	320	352 ^a	414	+62
Current mill average:			42.4	42.5	+0.1	12.4	12.3	-0.1	108	107	-1	299	328	+29	366	399	+33										
Cumulative mill average:			42.6			12.5			108			307			373												
Mill factor, %			99.5			99.2			100.0			97.4			98.1												
Mill index, %			99.8			97.6			97.3			90.6			97.3												

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL U

February and March, 1966

Date Made	Finish	Mch. No.	Basis Weight, lb.			Caliber, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
			Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.					
1-31-66	W.F.	-	43.6	42.0	42.5	43.0	+0.5	12.1	11.1	11.7	11.9	+0.2	136	115	124	118	- 6	352	272	307	297	-10	368	336	351 ^a	339	-12
1-31-66	W.F.	-	44.0	42.2	43.1	43.5	+0.4	12.5	11.9	12.1	12.1	0.0	127	103	120	118	- 2	392	272	330	302	-28	384	352	369 ^a	349	-20
3- 1-66	W.F.	-	43.6	40.0	41.9	41.6	-0.3	13.2	11.7	12.6	12.5	-0.1	132	90	113	107	- 6	368	288	317 ^a	315	- 2	384	312	359 ^a	371	+12
3- 1-66	W.F.	-	44.0	40.0	42.7	42.6	-0.1	13.3	11.9	12.8	12.8	0.0	138	94	119	109	-10	376	288	335 ^a	325	-10	392	328	361 ^a	383	+22
Current mill average:			42.5	42.7	+0.2	12.3	12.3	0.0	119	113	- 6	322	310	-12	360	360	0										
Cumulative mill average:			42.6			13.1			113			374			393												
Mill factor, %			99.8			93.9			105.3			86.1			91.6												
Mill index, %			100.0			96.9			107.2			97.6			95.7												

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL V
February and March, 1966

Date Made	Mch. No.	Finish	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
			Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill										
			Max.	Min.		Max.	Min.		Av.	Diff.		Max.	Min.		Av.	Diff.		Max.	Min.	Av.	Diff.						
1-25-66	1	---	43.6	42.0	42.5	42.8	+0.3	13.1	12.2	12.7	12.6	-0.1	122	86	103	100	-3	272	208	236	254	+18	320	272	301 ^a	302	+1
1-25-66	1	---	44.0	41.4	42.2	42.2	0.0	13.1	12.0	12.7	12.3	-0.4	130	85	104	100	-4	280	176	233 ^a	260	+27	336	304	321 ^a	295	-26
2-22-66	1	---	43.0	42.0	42.2	42.8	+0.6	13.2	12.0	12.5	12.3	-0.2	124	82	105	103	-2	304	240	275 ^a	295	+20	368	312	339 ^a	336	-3
2-22-66	1	---	43.6	42.0	42.4	42.9	+0.5	13.2	11.5	12.5	12.3	-0.2	124	93	108	100	-8	328	216	273 ^a	285	+12	360	320	339 ^a	373	+34
3-3-66	1	---	43.6	42.0	42.6	43.1	+0.5	13.4	12.2	13.0	12.9	-0.1	124	81	102	101	-1	296	224	262 ^a	281	+19	336	296	314 ^a	330	+16
3-13-66	1	---	42.4	40.6	41.9	42.5	+0.6	12.9	11.3	12.2	12.1	-0.1	133	90	108	106	-2	312	208	270 ^a	287	+17	368	288	321 ^a	332	+11
Current mill average:			42.3	42.7	+0.4			12.6	12.4	-0.2			105	102	-3			258	277	+19			323	328	+5		
Cumulative mill average:			42.2					12.9					107					270					322				
Mill factor, %			100.2					97.7					98.1					95.6					100.3				
Mill index, %			99.5					99.2					94.6					78.2					85.9				

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL W
February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
		Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.											
					Diff.				Diff.				Diff.				Diff.					Diff.					Diff.
1-3-66	W.F. 1	43.6	42.2	42.7	43.6	+0.9	12.9	12.0	12.5	12.3	-0.2	130	88	112	112	0	384	288	343 ^a	357	+14	416	352	373 ^a	371	-2	
1-3-66	W.F. 1	43.6	42.4	42.9	43.5	+0.6	12.9	12.1	12.5	12.4	-0.1	132	90	110	116	+6	416	304	356 ^a	356	0	432	336	380 ^a	379	-1	
1-15-66	W.F. 2	43.2	41.8	42.1	42.5	+0.4	13.2	12.7	13.0	12.8	-0.2	125	78	107	111	+4	352	304	323	303	-20	448	352	391 ^a	366	-25	
1-15-66	W.F. 2	42.4	41.0	41.9	42.4	+0.5	13.4	12.7	13.1	12.9	-0.2	126	84	109	110	+1	352	232	295 ^a	309	+14	432	336	395 ^a	364	-31	
1-30-66	W.F. 1	44.0	42.8	43.5	43.6	+0.1	13.0	12.0	12.4	12.3	-0.1	131	87	108	111	+3	400	304	345 ^a	332	-13	416	320	361 ^a	359	-2	
1-30-66	W.F. 1	44.0	42.2	43.2	43.8	+0.6	13.0	12.0	12.4	12.4	0.0	134	84	107	110	+3	416	304	330	337	+7	392	312	356 ^a	383	+27	
2-8-66	W.F. 2	43.8	42.0	43.0	43.8	+0.8	13.8	12.9	13.2	13.2	0.0	128	89	109	112	+3	416	288	351 ^a	334	-17	472	344	395 ^a	401	+6	
2-8-66	W.F. 2	43.8	42.4	43.0	43.6	+0.6	13.8	13.0	13.3	13.1	-0.2	130	84	107	110	+3	432	288	343	331	-12	416	352	381 ^a	397	+16	
Current mill average:		42.8	43.3	+0.5	12.8	12.7	-0.1	108	111	+3	336	332	-4	379	377	-2											
Cumulative mill average:		42.6			12.7			115			339			390													
Mill factor, %		100.5			100.8			93.9			99.1			97.2													
Mill index, %		100.7			100.8			97.3			101.8			100.8													

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXVI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL X
February and March, 1966

Date Made	Keh. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine											
		Institute	Max. Min.	Av.	Institute	Max. Min.	Av.	Institute	Max. Min.	Av.	Institute	Max. Min.	Av.	Institute	Max. Min.	Av.									
2-21-66	6	45.6	41.6	43.5	43.1	-0.4	12.8	11.4	12.0	11.8	150	76	116	116	0	400	304	355 ^a	328	-27	432	352	390 ^a	393	+3
3-4-66	6	45.6	43.4	46.3	45.6	-0.7	13.9	12.2	13.1	12.8	149	67	111	115	+4	472	320	383 ^a	359	-24	480	392	430 ^a	422	-8
Current mill average:		44.9	44.3	-0.6	12.6	12.3	-0.3	114	116	+2	369	344	-25	410	408	-2									
Cumulative mill average:																									
Mill factor, %																									
Mill index, %		105.6	99.2	102.7	111.8	109.0																			

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL Y

February and March, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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TABLE XVIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL Z

No samples submitted.

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.

of linerboard. In addition to the presentations of Institute and mill data described above, Tables IV through XXVIII also include under each test heading a column labeled "Diff." This column shows the differences between averages obtained at the Institute and those obtained at the mills. The data obtained at the Institute are used as the reference in calculating these differences.

The average test results obtained at the Institute and at the mills are summarized in Table XXIX for the current period. Shown in this table for each mill is the difference for each test between the current mill average based on Institute data and the current mill average based on mill data. In addition, for each test the maximum difference encountered in comparing Institute and mill averages for individual sample lots is shown. In Table XXX, the differences for each test between the current mill averages based on Institute data and those based on mill data shown in Table XXIX have been converted to percent (based on Institute data as a reference). In addition, for purposes of comparison, the percentage differences from the previous two bimonthly reports are shown in Table XXX.

A summary of the agreement obtained in the comparisons of Institute and mill test data for the current period is shown in Table XXXI. This summary is based on the results given in Table XXX. The tabulated data show the number of mills, and the percentage of all mills which this number represents, whose average test results for the current period fall within designated percentages from the average test results obtained at the Institute. It may be noted from this summary that agreement between the results obtained at the Institute and those obtained at the mills was generally good.

TABLE XXIX
SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS) FOR FEBRUARY AND MARCH, 1966

Mills ^a	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T	U	V	W	X	Y	Z
No. of samples compared	1	2	9	11	11	8	6	7	0	8	3	7	8	0	6	2	8	8	9	4	6	8	2	8	0
	Basis Weight																								
Institute	42.6	41.9	42.3	42.4	42.7	42.6	42.4	42.5	43.4	43.3	42.7	42.6													
Mill	41.8	42.4	43.4	43.1	43.2	42.5	41.7	42.5	43.8	43.1	43.2	42.5													
Av. diff. ^b	-0.8	+0.5	+1.1	+0.7	+0.5	-0.1	-0.7	0.0	+0.4	-0.2	+0.5	-0.1													
Max. diff. ^c	-0.8	+0.7	+1.6	+1.3	+2.2	+0.3	-0.9	+0.4	+0.9	-1.3	+1.0	-0.8													
	Caliper																								
Institute	12.9	11.6	12.9	12.7	12.4	12.2	12.9	12.1	12.8	13.5	12.5	13.5													
Mill	12.7	11.4	12.6	12.4	12.1	12.4	12.5	11.9	12.3	13.1	12.4	12.9													
Av. diff. ^b	-0.2	-0.2	-0.3	-0.3	-0.3	+0.2	-0.4	-0.2	-0.5	-0.4	-0.1	-0.6													
Max. diff. ^c	-0.2	-0.3	-1.8	-0.6	-0.8	+0.3	-0.7	-0.4	-0.9	-0.5	-0.3	-0.8													
	Bursting Strength																								
Institute	111	106	103	116	113	109	111	114	116	104	112	112													
Mill	109	112	109	115	110	110	117	111	113	104	114	111													
Av. diff. ^b	-2	+6	+6	-1	-3	+1	+6	-3	-3	0	+2	-1													
Max. diff. ^c	-2	+7	+17	-4	-7	+6	+10	-7	-10	-3	+6	-5													
	Tearing Strength, in																								
Institute	327	350	279	297	289	347	377	291	344	379	321	315													
Mill	--	362	291	301	283	--	336	281	341	337	293	309													
Av. diff. ^b	--	+12	+12	+4	-6	--	-41	-10	-3	-42	-28	-6													
Max. diff. ^c	--	+18	+34	+23	-25	--	-65	-30	-35	-62	-44	-51													
	Tearing Strength, cross																								
Institute	375	365	335	356	354	395	409	366	385	398	385	368													
Mill	--	388	378	385	367	--	390	363	387	375	379	365													
Av. diff. ^b	--	+23	+43	+29	+13	--	-19	-3	+2	-23	-6	-3													
Max. diff. ^c	--	+27	+78	+54	+31	--	-39	-23	+22	-52	-27	+30													

^aComparison based on averages involved only those samples on which mill test data were submitted.
^bAverage difference is the difference between the Institute mill average and the mill average based on mill test data.
^cMaximum difference encountered in comparing the Institute average and the mill averages for any sample submitted by that particular mill.

TABLE XXX
COMPARISON OF INSTITUTE-MILL DIFFERENCES FOR FEBRUARY AND MARCH, 1966

Average Difference, %													
Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, cross	Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, cross
A	Oct.-Nov.	+1	-2	+9	--	--	N	Oct.-Nov.	--	--	--	--	--
	Dec.-Jan.	0	-2	+7	--	--		Dec.-Jan.	--	--	--	--	--
	Current	-2	-2	-2	--	--		Current	--	--	--	--	--
B	Oct.-Nov.	0	-4	+3	-3	-0.3	O	Oct.-Nov.	+0.9	0	0	+6	+4
	Dec.-Jan.	+0.5	-4	+2	-4	+1		Dec.-Jan.	+0.2	-0.8	-0.9	+6	-3
	Current	+1	-2	+6	+3	+6		Current	+0.7	-0.8	0	-2	-2
C	Oct.-Nov.	--	--	--	--	--	P	Oct.-Nov.	+0.5	-2	0	0	-6
	Dec.-Jan.	--	--	--	--	--		Dec.-Jan.	-0.9	-5	+5	-6	-8
	Current	+3	-2	+6	+4	+13		Current	+0.5	-0.8	+0.9	+2	-3
D	Oct.-Nov.	+1	-2	+2	+5	+5	Q	Oct.-Nov.	+0.5	0	+3	-14	-3
	Dec.-Jan.	+0.7	-3	-0.9	+0.3	+5		Dec.-Jan.	-1	-0.8	+2	-25	-17
	Current	+2	-2	-0.9	+1	+8		Current	+0.5	+0.8	+4	-11	-4
E	Oct.-Nov.	+2	-2	-4	-2	+8	S	Oct.-Nov.	+0.5	-2	0	+4	+17
	Dec.-Jan.	+0.2	-2	-2	-8	-4		Dec.-Jan.	0	-3	+4	+6	+18
	Current	+1	-2	-3	-2	+4		Current	+2	-2	-3	+2	+7
F	Oct.-Nov.	0	-2	+5	--	--	T	Oct.-Nov.	+0.2	-0.8	+1	+8	+10
	Dec.-Jan.	-0.2	+0.8	+3	--	--		Dec.-Jan.	-0.2	-0.8	-0.9	+8	+9
	Current	-0.2	+2	+0.9	--	--		Current	+0.2	-0.8	-0.9	+10	+9
G	Oct.-Nov.	-0.2	-3	+2	-4	-3	U	Oct.-Nov.	0	-0.8	-7	-11	-5
	Dec.-Jan.	-1	-2	+2	-7	-5		Dec.-Jan.	-0.9	-0.8	-6	-5	-2
	Current	-2	-3	+5	-11	-5		Current	+0.5	0	-5	-4	0
H	Oct.-Nov.	-0.2	-4	-2	-9	-2	V	Oct.-Nov.	+2	-2	-3	+5	+10
	Dec.-Jan.	0	-2	-0.9	-3	-2		Dec.-Jan.	+0.2	-2	-2	-0.7	+0.6
	Current	0	-2	-3	-3	-0.8		Current	+0.9	-2	-3	+7	+2
I	Oct.-Nov.	--	--	--	--	--	W	Oct.-Nov.	+0.9	0	+4	-5	+0.3
	Dec.-Jan.	+1	0	-11	-11	-4		Dec.-Jan.	+1	-0.8	+4	-7	-5
	Current	--	--	--	--	--		Current	+1	-0.8	+3	-1	-0.5
J	Oct.-Nov.	+0.7	-2	+0.9	-5	-1	X	Oct.-Nov.	--	--	--	--	--
	Dec.-Jan.	+0.2	-0.8	0	-3	-3		Dec.-Jan.	--	--	--	--	--
	Current	+0.9	-4	-3	-0.9	+0.5		Current	-1	-2	+2	-7	-0.5
K	Oct.-Nov.	+1	-0.8	-7	-6	+0.7	Y	Oct.-Nov.	+1	-3	+5	+2	+11
	Dec.-Jan.	-1	-2	-3	-11	-6		Dec.-Jan.	+1	-4	-2	+6	+13
	Current	-0.5	-3	0	-11	-6		Current	+2	-2	-2	+10	+17
L	Oct.-Nov.	+0.5	-3	+5	-8	-0.3	Z	Oct.-Nov.	--	--	--	--	--
	Dec.-Jan.	+0.5	0	+2	-4	+2		Dec.-Jan.	--	--	--	--	--
	Current	+1	-0.8	+2	-9	-2		Current	--	--	--	--	--
M	Oct.-Nov.	-0.5	-3	-2	+2	+2		Oct.-Nov.	--	--	--	--	--
	Dec.-Jan.	-0.7	-3	0	-1	-2		Dec.-Jan.	--	--	--	--	--
	Current	-0.2	-4	-0.9	-2	-0.8		Current	--	--	--	--	--

TABLE XXXI
SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL RESULTS
FOR FEBRUARY AND MARCH, 1966

		Average Difference, % ^a								
		+0.5	+1	+2	+3	+4	+5	+7.5	+10	+17
Basis weight	Number of mills	8	16	21	22					
	Percentage of mills	36.4	72.7	95.5	100.0					
Caliper	Number of mills	1	7	18	20	22				
	Percentage of mills	4.5	31.8	81.8	90.9	100.0				
Bursting strength	Number of mills	2	7	11	17	18	20	22		
	Percentage of mills	9.1	31.8	50.0	77.3	81.8	90.9	100.0		
Tearing strength, in	Number of mills	0	3	8	10	12	12	14	17	20
	Percentage of mills	0.0	15.0	40.0	50.0	60.0	60.0	70.0	85.0	100.0
Tearing strength, cross	Number of mills	4	6	9	10	12	13	16	18	20
	Percentage of mills	20.0	30.0	45.0	50.0	60.0	65.0	80.0	90.0	100.0

^aBased on the average percentage differences between Institute and mill data given in Table XXX.

Preconditioning and conditioning data pertinent to the test results obtained at the mills during the current period are given in Table XXXII.

TABLE XXXII
PRECONDITIONING AND CONDITIONING DATA FOR MILL TESTS
FEBRUARY AND MARCH, 1966

Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time, hr.	R.H., %	Temp., °F.	Time, hr.
A	--	--	--	48	72	1.5
B ^a						
C	50	71-72	24-36	54	72	36-48
D	--	--	--	50	73	24
E	50	72	94-745	50	72	3.5-4
F	--	--	--	47-51	73-76	24-168
G	50	72	24-72	50	72	2-72
H	38-48	50-64	0.5	50	72	24-48
I ^b						
J	34-36	76-77	8	48-52	71-73	16
K	49-50	70-73	12-72	49-50	72-74	3-72
L	35	73	48	50	73	48
M ^b	50	72-73	24	50	72-73	24
N ^b						
O	50	71-73	48	50	73	--
P	35	73	24	50	73	48
Q	--	--	--	45-64	68-75	--
S	50	72	24	--	--	--
T	55	72	--	--	--	--
U	--	--	--	50	73	24
V	50	72	72	50	72	72
W	50	73	24	50	73	24
X	35	90	24	50	72-73	48
Y ^b	50	70-72	120	50	70-72	120
Z ^b						

^aNo data were submitted relative to preconditioning and conditioning.

^bNo samples were submitted for evaluation during the current period.

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W. N. Hubert, Research Aide



R. C. McKee, Chairman
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